Claims:

1. A welding method using a non-consumable electrode, in which the electrode is supplied with energy from a power source after the ignition of an electric arc between the electrode and the workpieces to be joined, characterized in that, prior to the welding process proper, i.e., after the ignition of the electric arc, a start program is performed without introduction of an additional material, by which the electrode is supplied with pulsed energy in the form of current or voltage pulses over a presettable period of time, thus causing the liquid melt bath to oscillate or vibrate, and that the welding process proper is carried out after termination of the start program.

2. A tack welding method using a non-consumable electrode and without introduction of an additional material, in which the electrode is supplied with energy from a power source after the ignition of an electric arc between the electrode and the workpieces to be joined, characterized in that, prior to the welding process proper, a start program is performed, by which the electrode is supplied with pulsed energy

in the form of current or voltage pulses over a presettable period of time, thus causing the liquid melt bath to oscillate or vibrate, and that the welding process proper is carried out after termination of the start program by supplying the electrode with constant energy.

3. A method according to claim 1, characterized in that the electrode is supplied with constant energy during the welding process proper.

4. A method according to claim 2 or 3, characterized in that the introduction of energy during the start program is controlled in a manner that the mean value of the pulsed energy corresponds with the amplitude of the set welding current for the subsequent, constant-energy welding process proper.

5. A method according to any one of claims 1 to 4, characterized in that the parameters of the start program and, in particular, the pulse parameters like pulse height, pulse width, pulse frequency, pulse break and, possibly, curve shape are freely settable at the power source.

6. A method according to any one of claims 1 to 5, characterized in that the parameters of the start program by a control and/or evaluation device provided

in the welding apparatus or in the power source are automatically fixed or varied as a function of the parameters of the welding process proper.

7. A method according to claim 6, characterized in that the parameters of the start program are automatically fixed or varied as a function of the amplitude of the welding current used for the welding process proper.

8. A method according to claim 6 or 7, characterized in that that the parameters of the start program are automatically fixed or varied as a function of the material thickness and/or material of the workpieces to be welded or further parameters of the welding process proper.

9. A method according to any one of claims 6 to 8, characterized in that several start programs having different parameters or curve shapes are defined and stored, and that said defined and stored start programs are used and/or varied by the control and/or evaluation device to select the parameters for the start program.

10. A method according to any one of claims 1 to 9, characterized in that the start program is carried out for a presettable period of time after the ignition of the electric arc.

11. A method according to claim 10, characterized in

that during said presettable period of time after the ignition of the electric arc the electrode is supplied with constant energy .

12. A method according to claim 11, characterized in that the electrode, during the presettable period of time after the ignition of the electric arc, is supplied with constant energy different from that supplied during the welding process proper.